

ABSTRACT

BACKGROUND

Globally, 17.5 million deaths in 2012 was due to Cardiovascular diseases. Developing countries contributed more than 75% of cardiovascular deaths. Epidemiological transition i.e. industrialization, urbanization, and related lifestyle changes has cause a rapid increase in death rate in developing countries, as compared to developed countries. About a Quarter of all mortality is caused by Cardio Vascular Disease. More then 80% of CVD deaths are attributable to Ischemic heart disease and stroke.

In India Cardio Vascular Disease death rate of 272 per 100,000 population, is higher than the global average of 235 per 100,000 population according to The Global Burden of Disease study. The high CVD mortality in South Asian countries and India are due to various factors. These are: (a) lack of policies for control of primordial risk factors (smoking, smokeless tobacco, alcohol, physical inactivity, and unhealthy diet); (b) poor control of risk factors like smoking, management; and (d) lack of appropriate long-term care (cardiovascular rehabilitative and secondary prevention i.e. high blood pressure, obesity, high cholesterol and diabetes mellitus (c) low availability and, at times, substandard acute Coronary Heart Disease management programs).

In Heart failure due to low cardiac output and reduced systemic blood pressure there is decrease perfusion of the baroreceptors (in carotid sinus) and the renal afferent arteriole, there by activating "hypovolemic" hormones/ Neurohormonal, such as rennin, ADH (Antidiuretic hormone), and norepinephrine,

which leads to an increased plasma and extracellular fluid volumes in already edematous patient. This Neurohormonal release causes reduction in the serum sodium concentration **parallel the severity** of the heart failure. The same Neurohormonal mechanism operating in acute STEMI patients to cause Hyponatremia.

MATERIAL AND METHODS

Patients admitted in intensive coronary care unit (ICCU) of Coimbatore medical college and hospital between the period, February 2017 and February 2018, with acute ST elevation myocardial infarction (STEMI) were studied in a prospective manner. A total of 200 patients were studied.

All the patient admitted with history suggestive of myocardial infarction was taken standard 12 lead ECG. If the patient had inferior wall MI right side ECG was taken ie RV3, RV4.

On admission basic investigation like, random Blood sugar, Blood urea, serum creatinine and electrolytes, LFT (liver function test), CBC (complete blood count) were done for all the patients. Chest X-ray, ECHO, lipid profile was taken for all the patients during hospital stay.

On admission and at 24, 48 and 72 hours, Plasma Sodium levels were obtained. For every 100mg/dl rise in blood sugar level, the plasma sodium level was decreased by 1.4 meq/dl.

All the patients were followed up for one week and mortality and morbidity data were recorded. All the data were analysed. Analysis was done using t test. confidence interval was taken as 95%. A p value of <0.05% was taken as significant.

RESULTS AND OBSERVATIONS

In my study maximum number of patients were from 41-60 years of age. In the present study 72 % of the population belongs to male and 28% female gender.

Risk factors in the study population, 42% had hypertension , 47% had diabetes mellitus and 54% had smoking. AWMi is the most common type of presentation of MI in our case study.

Number of patient with normal sodium and thereafter is 132, hyponatremia on admission was 26 and hyponatremia after admission was 42.

In the study the mean age of group A was 48 years , group B was 54 years and group C was 56 years. Majority of the study population were male constituting group A 94, group B 22 and group C 28.

The incidence of Anterior wall MI(AWMI) among patients with normal sodium levels was 80.3%, decreased sodium on admission was 92% and patients who developed decrease in sodium level within 72 hours was 71.4%.

Around 31% of patients with hyponatremia on admission belonged to killip class I and 69 % belonged to killip class II-IV. Among patients with hyponatremia within 72 hours 33% belonged to class I killip , 67% belonged to class II-IV killip.

The mean Ejection fraction(EF) was less among patients who presented with Hyponatremia (mean EF 47.24%) or developed Hyponatremia within 72

hours(mean EF 47.15%) of admission when compared to patients with normal sodium levels(mean EF 48.28%).

The overall mortality rate in my study was 17%. Mortality among Patients with normal sodium levels on admission and thereafter was 09 %, mortality in patients with Hyponatremia on admission was 38%,and mortality in Hyponatremia within 72 hours of admission was 29%.

Survivors had mean serum sodium level of 137.81 Meq/L and lowest level was 123meq/l. In non survivors had mean serum sodium level of 132.42 Meq/L and lowest level was 121meq/l.

CONCLUSION

In acute STEMI Hyponatremia on admission or development of hyponatremia within 72 hours after admission was associated with a poor prognostic outcome. Hyponatremia severity predicts the mortality in acute STEMI patients. Most of the patients were males ,belongs to a higher age group, with lower Ejection fraction (EF), Anterior wall infarction(AWMI) and a higher proportion of patients were Smokers, Systemic Hypertensive,Diabetes mellitus and had Dyslipidemia.. Thus development of hyponatremia appeared to be a significant independant risk factor in predicting the short term mortality along with other risk factors in AcuteMI.

KEY WORD: Acute myocardial infarction ,Hyponatremia,